



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/576,353

02/05/2007

Joerg Friedrich

82544

7023

23685 7590 12/17/2009
KRIEGSMAN & KRIEGSMAN
30 TURNPIKE ROAD, SUITE 9
SOUTHBOROUGH, MA 01772

EXAMINER

MCCRACKEN, DANIEL

ART UNIT

PAPER NUMBER

1793

MAIL DATE

DELIVERY MODE

12/17/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/576,353	Applicant(s) FRIEDRICH ET AL.	
	Examiner DANIEL C. MCCracken	Art Unit 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 February 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Citation to the Specification will be in the following format: (S. # : ¶/L) where # denotes the page number and ¶/L denotes the paragraph number or line number. Citation to patent literature will be in the form (Inventor # : LL) where # is the column number and LL is the line number. Citation to the pre-grant publication literature will be in the following format (Inventor # : ¶) where # denotes the page number and ¶ denotes the paragraph number.

Status of Application

Applicants preliminary amendment (removing multiple dependencies, etc.) dated 2/5/2007 has been received and will be entered. Claims 1-29 are pending.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

I. Claims 25-29 are rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101.

Claims 25 and 28 do not set forth any steps involved with the use/process. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd. v. Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966). Here, the independent claims (Claims 25 and 28) recite a use, but are effectively product-by-process limitations. All claims depending therefrom import the ambiguities of Claims 25 and 28.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

I. Claims 5, 21-22, and 25-29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "normal pressure" in Claim 5 is a relative term which renders the claim indefinite. The term "normal pressure" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

With respect to Claim 21, the scope of this claim is unclear. The language in the claim is a hybrid product-by-process and "product-by-apparatus" claim, *i.e.* "produced with the method according to claim 1 or with a plasmatron . . ." While product-by-process claims are permitted and a scope can be assigned to that claim, a product-by-apparatus claim does not limit the product. For example, what if the plasmatron is not "plugged in?"

With respect to Claim 22, the comparison is not understood, and is akin to a relative term not defined by the Specification. No standard for ascertaining the "unmodified edges" was set forth in the disclosure, and as such, determination of what is "rounded" relative to that is not possible.

Claim 25-29 provides for the use of "a carbon material," but, since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active,

Art Unit: 1793

positive steps delimiting how this use is actually practiced. These claims share the same hybrid product-by-process and product-by-apparatus language discussed with respect to Claim 21. Dependent claims import the ambiguities of the independent claims.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

I. Claims 1-2, 5-6, 8-12 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Takada, et al., *Surface Modification and Characterization of Carbon Black With Oxygen Plasma*, Carbon 1996; 34(9): 1087-1091 (hereinafter "Takada at ___").

With respect to Claim 1, Takada teaches introducing carbon black into a plasmatron and treating it with an oxygen plasma at high frequency. *See* (Takada at 1097-1088) ("2. Experimental"). As to Claim 2, carbon black has graphitic components. (Takada at 1097, col. 1). As to Claim 5, a pressure of 100 Pa is taught. (Takada at 1088, col. 1). As to Claim 6, the carbon black is under the inductor/RF generator. (Takada at 1087) ("Fig. 1"). As to Claim 8, an oxygen pressure of 100 Pa is taught. (Takada at 1088, col. 1). As to Claim 9, the non-steady state conditions described (*i.e.* emptying argon and adding oxygen) suggest the claimed range. *Id.* As to Claim 10, argon is described. *Id.* As to Claim 11, oxygen is introduced, which reacts with the carbon black. *See* (Takada at 1088, col. 2) ("XPS Analysis"). As to Claim 12, 13.58 MHz are taught. (Takada at 1087) ("Fig. 1").

Art Unit: 1793

With respect to Claim 20, Takada teaches carbon black modified with a plasma and oxygen. (Takada at 1087, col. 2 *et seq.*). This is all the claim requires.

II. Claims 13-18 are rejected under 35 U.S.C. 102(b) as being anticipated by US 4,673,589 to Standley.

With respect to Claim 13, Standley teaches a plasmatron with an inductor (24) various gas supply lines (*e.g.* line 10) and material supply lines (*e.g.* line 15). *See generally* (Standley 5: 49 *et seq.*, “Fig. 1”). As to Claim 14, the features identified in connection with Claim 13 are relied upon. The function appears identical – *i.e.* generating a plasma and introducing a material into the reactor. As to Claim 15, the gas is supplied to the edge of the plasma. *See* (Standley “Fig. 1”) (distribution manifold 22). As to Claim 16, the gas lines or the access door (Standley 5: 55) can be characterized as powder introduction devices. As to Claim 17, power supplies are taught. (Standley 6: 9). As to Claim 18, gas supply lines are taught. (Standley 5: 60 *et seq.*).

III. Claims 1-4 are rejected under 35 U.S.C. 102(b) as being anticipated by US 2003/0082094 to Loufty, et al.

With respect to Claim 1, Loufty teaches a plasmatron and plasma gas. *See generally* (Loufty “Figs. 1-2”). Material is introduced. (Loufty 5: [0032] *et seq.*). As to Claim 2, coal is recited. (Loufty 5: [0033]). As to Claim 3-4, particle introduction means and an opposing exit opposite the plasma are taught. (Loufty “Figs. 1-2”).

Art Unit: 1793

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

As to the rejection under 35 U.S.C. §§ 102/103, where the applicant claims a composition in terms of a function, property or characteristic and the composition of the prior art is the same as that of the claim but the function is not explicitly disclosed by the reference, the Examiner may make a rejection under both 35 U.S.C. 102 and 103, expressed as a 102/103 rejection. See MPEP 2112 III. (discussing 102/103 rejections). This practice has also been approved for product-by-process claims. MPEP 2113.

I. Claims 20-24 rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Takada, et al., *Surface Modification and Characterization of Carbon Black With Oxygen Plasma*, Carbon 1996; 34(9): 1087-1091.

The preceding discussion of Claim 20 accompanying the anticipation rejection *supra* is expressly incorporated herein by reference. As to Claim 22-23, given the similarity in the

Art Unit: 1793

processes (*i.e.* oxygen plasma), and notwithstanding the ambiguities noted above, it is expected that the properties are necessarily taught. Likewise, with respect to Claim 24, it is expected that the carbon black of Takada has the graphitic components. (Takada at 1087, col. 1). “[T]he PTO can require an applicant to prove that the prior art products do not necessarily or inherently possess the characteristics of his [or her] claimed product. Whether the rejection is based on inherency’ under 35 U.S.C. 102, on prima facie obviousness’ under 35 U.S.C. 103, jointly or alternatively, the burden of proof is the same...[footnote omitted].” The burden of proof is similar to that required with respect to product-by-process claims. *In re Fitzgerald*, 619 F.2d 67, 70, 205 USPQ 594, 596 (CCPA 1980) (quoting *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433-34 (CCPA 1977)).

With respect to Claim 21, this claim is being treated as a product-by-process claim. The discussion of Claim 1 accompanying the anticipation rejection *supra* is relied upon.

II. Claims 25-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takada, et al., *Surface Modification and Characterization of Carbon Black With Oxygen Plasma*, Carbon 1996; 34(9): 1087-1091 in view of US 5,028,500 to Fong, et al.

With respect to Claims 25-29, and notwithstanding the ambiguities noted above related to use claims, use of carbon black in electrodes/anodes/lithium-ion batteries is old and known, and the Examiner takes official notice that it is. In support of taking official notice, *i.e.* in making sure there is substantial evidence on the record, the Examiner provides US 5,028,500 to Fong, et al. *See* (Fong 5: 4 *et seq.*). Use of a known material consistent with its known uses is an obvious expedient to the skilled artisan.

Art Unit: 1793

III. Claims 13 and 19 rejected under 35 U.S.C. 102(b) as being anticipated by US 2003/0200742 to Smaling in view of US 5,409,784 to Bromberg.

With respect to Claims 1 and 13 Smaling teaches a plasmatron with various lines for introducing the material and plasma gas. *See e.g.* (Smaling "Fig. 4"). Note that Smaling incorporates several plasmatron patents by reference that can be employed with the apparatus of Smaling. (Smaling 2: [0023]). One of these is US 5,409,784 to Bromberg, et al. Bromberg teaches plasmatrons with more detail, including induction coils. *See e.g.* (Bromberg "Fig. 4"). As to Claims 7 and 19, Smaling teaches a filter and filtering step. (Smaling "Fig. 4 - '76").

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DANIEL C. MCCracken whose telephone number is (571)272-6537. The examiner can normally be reached on Monday through Friday, 9 AM - 6 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley S. Silverman can be reached on (571) 272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Daniel C. McCracken/
Daniel C. McCracken
Examiner, Art Unit 1793
DCM

/Stanley S. Silverman/
SPE, Art Unit 1793